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10/573,643

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Bjarne Pedersen

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EXAMINER

CIGNA, JACOB

ART UNIT

PAPER NUMBER

3726

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------------|--|
| Office Action Summary | Application No. 10/573,643 | Applicant(s) PEDERSEN, BJARNE | |
| | Examiner JACOB J. CIGNA | Art Unit 3726 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-23 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6, 8, 10-15, 18-23 and 27 is/are rejected.
- 7) ☐ Claim(s) 7, 9, 16, 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 September 2010 has been entered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner recognizes that the phrase "means for releasing adherence" invoked 35 USC 112 Paragraph 6, claiming means plus function. Examiner looked the specification to determine the structure of the means-plus-function as claimed and did not find any structure taught to perform the function as claimed. Thus, this claim is indefinite in light of the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5, 6, 8, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weitkamp (European Patent Publication EP-1101934-A2 hereinafter referred to as WEITKAMP).

5. As to claim 4, WEITKAMP teaches **equipment for servicing a wind turbine after a hub of the wind turbine has been mounted** (in WEITKAMP Figures 1 and 2, the hub 30 is shown to be mounted to the rest of the wind turbine), **said equipment comprising: a crane** (WEITKAMP teaches an onboard crane 52) **for lowering and hoisting wind turbine appliances from and to the hub** (WEITKAMP's onboard crane is capable of performing this intended use limitation to lowering and hoisting appliances, as shown in Figure 2); **and connecting means** (the fastening chain 68 is connected to the hub at a connecting means (unlabeled)) **for primarily securing the equipment** (the connecting means on the hub has a primary function of securing the fastening chain 68 to the hub, which secures the onboard crane 52), **including the crane, to an upwardly facing region of a curved surface of the hub** (as shown in Figures 1 and 2, the hub has an upwardly facing curved region. As shown in Figure 2, the connecting means is

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attached to the upwardly facing portion of the hub), **and receiving the load of the crane thereon** (the crane 52 is shown in Figure 2 to be pulling on the fastening chain 68, which is attached to the connecting means). WEITKAMP does not teach that **the connecting means having a lower surface adapted to conform to the generally upwardly facing curved hub surface**. However, since the connecting means is clearly shown in Figure 2 to be bearing the weight of the onboard crane 52 one in the art would have recognized that it would have been very important to have a strong connecting between the connecting means and the hub. Further, it would have been within the purview of a person having ordinary skill in the art to have recognized that one way to increase connection strength is to increase surface area. Thus, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the connection means having a lower surface adapted to conform to the generally upwardly facing curved hub surface because one would have recognized that by increasing the surface area of connection, that the strength of the connection would have improved.

6. As to claim 5, WEITKAMP teaches equipment according to claim 4, but does not teach **fastening means**, (WEITKAMP is silent as to how the unlabeled connecting means is secured to the hub 30. As shown in Figures 1 and 2, the connecting means is clearly not a permanent structure of the hub 30 and is removable (evidenced by the lack of connecting means in Figure 1). It is well known in the art to removably secure two parts by the use of bolts) **for securing the equipment to already available holes, said holes formerly used for hoisting the hub to a main shaft of the wind turbine**

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(While examiner recognizes that the 'already available holes formally used for hoisting the hub to a main shaft of the wind turbine' are a special technical feature for the disclosure, the claims go to equipment for servicing a wind turbine. The 'already available holes' are a part of the intended use of the equipment. As the prior art must be capable of performing the intended use, Examiner asserts that the disclosure of WEITKAMP is capable of being secured to the hub by bolts using already available holes.).

7. As to claim 6, WEITKAMP teaches equipment according to claim 5, where **connecting means comprises a first connecting piece intended for being secured to the curved surface of the hub in a first set of already available holes** (the connecting means shown in Figure 2 is a connecting piece capable of being secured to the curved hub surface in a first set of already available holes).

8. As to claim 8, WEITKAMP teaches equipment according to claim 6, wherein **the first connecting piece** (connecting piece unlabeled in Figure 2 connects the onboard crane 52 to the hub via the fastening chain 68) **is intended primarily for securing a crane, constituting part of the equipment, to the hub** (the primary use of the connecting piece is holding the fastening chain 68, which is connected to the onboard crane 52. Thus, the connecting piece (unlabeled) secures the crane to the hub).

9. As to claim 18, WEITKAMP teaches equipment according to claim 8, wherein **said crane** (onboard crane 52) **comprises primary holes for inserting bolts for securing the crane to the connecting piece and thus to the hub** (as shown in Figure 2, the crane 52 is held up by the fastening chains 68 which are connected via the

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connecting means to the hub 30. While WEITKAMP does not teach that the ends 66 of the crane arms 54 have holes, it is shown that the fastening chain is connected to the ends 66, and would have been obvious to a person having ordinary skill in the art to have connected the chains to the crane via bolts through holes in the crane.).

10. As to claim 27, WEITKAMP teaches **equipment** (onboard crane 52) **for servicing a wind turbine after a hub of the wind turbine has been mounted** (as shown in Figure 2, the crane is useful for lowering and hoisting equipment to and from the wind turbine nacelle and the hub is attached), **said equipment comprising: a crane** (onboard crane 52) **for lowering and hoisting wind turbine appliances from and to the hub** (as shown in Figure 2); **and connecting means** (as shown in Figure 2, the crane 52 is attached to the hub 30 via fastening chains 68 which are connected to the hub 30 via an unlabeled connection means) **for securing the equipment** (the crane is secured by the fastening chains and the connected means), **including the crane, to an upper region of the curved surface of the hub** (as shown in Figures 1 and 2, the hub is curved and thus has a curved upper region, which is where as shown in Figure 2, the connecting means is located). WEITKAMP does not teach that **said connecting means having a curved surface adapted to conform to the shape of the hub**.

However, since the connecting means is clearly shown in Figure 2 to be bearing the weight of the onboard crane 52 one in the art would have recognized that it would have been very important to have a strong connecting between the connecting means and the hub. Further, it would have been within the purview of a person having ordinary skill in the art to have recognized that one way to increase connection strength is to increase

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surface area. Thus, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the connection means having a lower surface adapted to conform to the generally upwardly facing curved hub surface because one would have recognized that by increasing the surface area of connection, that the strength of the connection would have improved.

11. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weitkamp (European Patent Publication EP-1101934-A2 hereinafter referred to as WEITKAMP) as applied to claim 6 above, and further in view of Eckland et al. (Us Patent 4,915,590 hereinafter referred to as ECKLAND).

12. As to claim 10, WEITKAMP teaches equipment according to claim 6, wherein **said connecting piece** (shown in Figure 2, connected to the hub, unlabeled) **for connecting the hub with the remainder of the equipment** (as shown in Figure 2, the connecting piece is connected to the hub and is connected to the fastening chain 68 which holds up the onboard crane 52) **being provided with primary holes for inserting bolts to be secured to the existing holes in the hub and thereby securing the connecting piece to the hub** (as discussed above, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided bolts to connect the connecting piece to the hub, further, the obviated bolts would have been capable of being secured to existing holes in the hub. Further, Examiner presents ECKLAND, which teaches that it is well known to attach turbine components to the hub of a turbine via bolts. ECKLAND specifically teaches bolting and gluing a turbine blade to a hub. A person having ordinary skill in the art at the time the

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invention was made would have recognized that it is well known to bolt a turbine component to the hub in order to secure it to the hub.), **and said connecting piece also being provided with secondary holes** (the holes shown in Figure 2 which connect the connecting piece to the fastening chain) **for inserting bolts for securing the remainder of the equipment to the connecting piece** (the connecting piece is not taught to be connected to bolts for securing the fastening chain, how it is well known in the art to provide a common rigging bolt through a fastener in order to connect a chain to a fastener.).

13. As to claim 11, WEITKAMP in view of ECKLAND teaches equipment according to claim 10, where **a cavity is formed in a bottom of the connecting piece, said cavity being intended for containing a cement- like substance when the connecting piece is secured to the hub for conforming to the curved hub surface** (ECKLAND teaches “A filler material is utilized to fill the space between the rotor blade outer surfaces and the adapter ring inner surface.).

14. As to claim 12, WEITKAMP in view of ECKLAND teaches equipment according to claim 11, where **the cavity is delimited by a collar extending circumferentially along the bottom of the connecting piece, and said collar limiting any flow from the cavity of the cement-like substance** (as shown in ECKLAND Figure 5, the “adapter ring inner surface” limits the flow of the filler material).

15. As to claim 13, WEITKAMP in view of ECKLAND teaches equipment according to claim 10, wherein **the connecting piece, is provided with means for releasing adherence by a cement-like structure of the connecting piece to the hub**

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(Examiner asserts that the bolts 23 are capable of releasing adherence by the filler material).

16. As to claim 14, WEITKAMP in view of ECKLAND teaches equipment according to claim 11, wherein **the cavity is delimited by a disc-like member extending inside the connecting piece, and said disc-like member limiting any flow from the cavity of the cement-like substance** (the adapter ring 27 is a disc-like member which extends inside the connecting piece and limits flow from the cavity of the filler-material).

17. As to claim 15, WEITKAMP in view of ECKLAND teaches equipment according to claim 10, wherein **the connecting piece comprises a flange extending circumferentially along the connecting piece, said flange being provided with means for securing the remainder of the equipment to the connecting piece** (The adapter ring 27 has a flange extending circumferentially along the connecting piece, said flange being secured to the hub by the filler material).

18. Claims 19-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weitkamp (European Patent Publication EP-1101934-A2 hereinafter referred to as WEITKAMP) as applied to claim 18 above, and further in view of Kramer (US Patent 4,002,243 hereinafter referred to as KRAMER).

19. As to claim 19, WEITKAMP teaches equipment according to claim 18, but KRAMER teaches: **the crane is provided with a jib connected to a mast of the crane, and said jib being swivable around a substantially vertical hinged connection** ("The jib crane has a horizontal arm or boom portion (12) which is adapted to be swung in a horizontal plane" (Column 2 lines 1-2). Further, the vertical hinged

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connection is taught to be the post member (item 19) as shown in Figures 1 and 2.) **and said jib extending outwards in relation to the mast and forwards in relation to a direction being a forwards direction of the wind turbine when the crane is secured to the hub** (The jib extends outward from the surface to which it is attached, as shown in Figure 1. WEITKAMP teaches an embodiment of securing the crane in a forwards direction of the wind turbine (as shown in Figure 7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to attach the crane in a direction being a forwards direction of the wind turbine because one would have recognized that the jib crane would have extend further out, increasing the range of the crane.).

20. As to claim 20, WEITKAMP in view of KRAMER teaches equipment according to claim 19, where **links are provided between the mast and the hinged connection** (KRAMER teaches "Fixedly secured to and laterally extending from the post member (19) is a lower ear member (25) which extends toward the hinge fitting (16) and protrudes between the spaced arms of the fitting (16). These ear members (24) and (25) constitute a first pair of ear members" (Column 2 lines 36-41). The fitting (16) has two links and is attached to the supporting member (11).), **said links extending outwards in relation to the mast and forwards in relation to a direction being a forwards direction of the wind turbine when the crane is secured to the hub** (the hinged fitting extends outward from the support member, and as taught in the discussion of claim 19, the hinged fitting extends in a forward direction of the wind turbine.).

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21. As to claim 21, WEITKAMP in view of KRAMER teaches equipment according to claim 20, where KRAMER teaches **the links have a greater dimension at an end where the links are attached to the mast** (the hinged fitting (16) is shown in Figure 4 to have a greater dimension where it meets the supporting member (11)) **and have a smaller dimension at an end where the jib by means of the hinged connection is attached to the links** (and the hinged fitting (16) is shown in figure 4 to have a smaller dimension at an end where the jib is attached to the post member (19)).

22. As to claim 23, the limitations of claim 18 are taught by WEITKAMP and KRAMER. The following limitations are not taught by WEITKAMP but are taught by KRAMER: **the jib has an I-shaped cross section or an inverted T-shaped cross-section** (KRAMER teaches that the boom (12) is shaped like an I-beam in Figure 1.) **and wherein wheels of a trolley are intended for being supported on a transversal parts of a profile** (The trolley (14) is shown to be rolling on the arm in Figure 1.).

23. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable Weitkamp (European Patent Publication EP-1101934-A2 hereinafter referred to as WEITKAMP) and Kramer (US Patent No. 4,002,243 hereinafter referred to as KRAMER) as applied to claim 20 above, and further in view of Krotov et al (US PATENT No 5,427,356 hereinafter referred to as KROTOV).

24. As to claim 22, the limitations of claim 20 are taught by WEITKAMP and KRAMER. The following limitations are not taught by WEITKAMP or KRAMER: **the links are made of a material less dense than steel**. KROTOV teaches a jib crane where the boom is an I-beam with a trolley. KROTOV teaches that the boom is made

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from aluminum, "Boom (41) is fabricated from a length of aluminum "I" beam" (Column 3 lines 64-65). Thus, aluminum is an acceptable metal to use in jib cranes. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have fabricated the links out of a material less dense than steel because one would have recognized that the same size links would be lighter if made from aluminum rather than steel, and that it would have been less costly to transport a lighter load to the hub.

Allowable Subject Matter

25. Claims 7, 9, 16, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

26. Applicant's arguments with respect to claims 4-23 and 27 have been considered but are moot in view of the new ground(s) of rejection.

27. Examiner has used WEITKAMP instead of BISSEN to obviate the crane connected to the hub of a wind turbine.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB J. CIGNA whose telephone number is (571)

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270-5262. The examiner can normally be reached on Monday - Friday 9:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DAVID P. BRYANT/
Supervisory Patent Examiner, Art Unit 3726

/JACOB J CIGNA/
Examiner, Art Unit 3726
April 25, 2011